

2. PRELIMINARY SSSTF/ICDF COMPLEX OPERATIONAL CONCEPT

Waste entering the ICDF Complex will be controlled on the basis of source, physical form, and contaminant concentration/activity levels. A uniform waste acceptance process will be developed and implemented that includes planning, waste profiling and certification, waste shipment, waste receipt, inspection, and disposal.

The general operational concept of waste flow from the originating project or WAG to the SSSTF/ICDF Complex is shown in Figure 2-1, Non-aqueous Waste Flow Path. The following sections use this figure to discuss specifics of the operational concept. For more discussion of the waste profiling, review, and acceptance procedures, refer to EDF-1544, *SSSTF Waste Verification and Treated Waste Statistical Approach*¹¹.

Use of the SSA to store aqueous wastes and wastes that were generated prior to the ICDF Complex becoming operational is part of the operational concept.

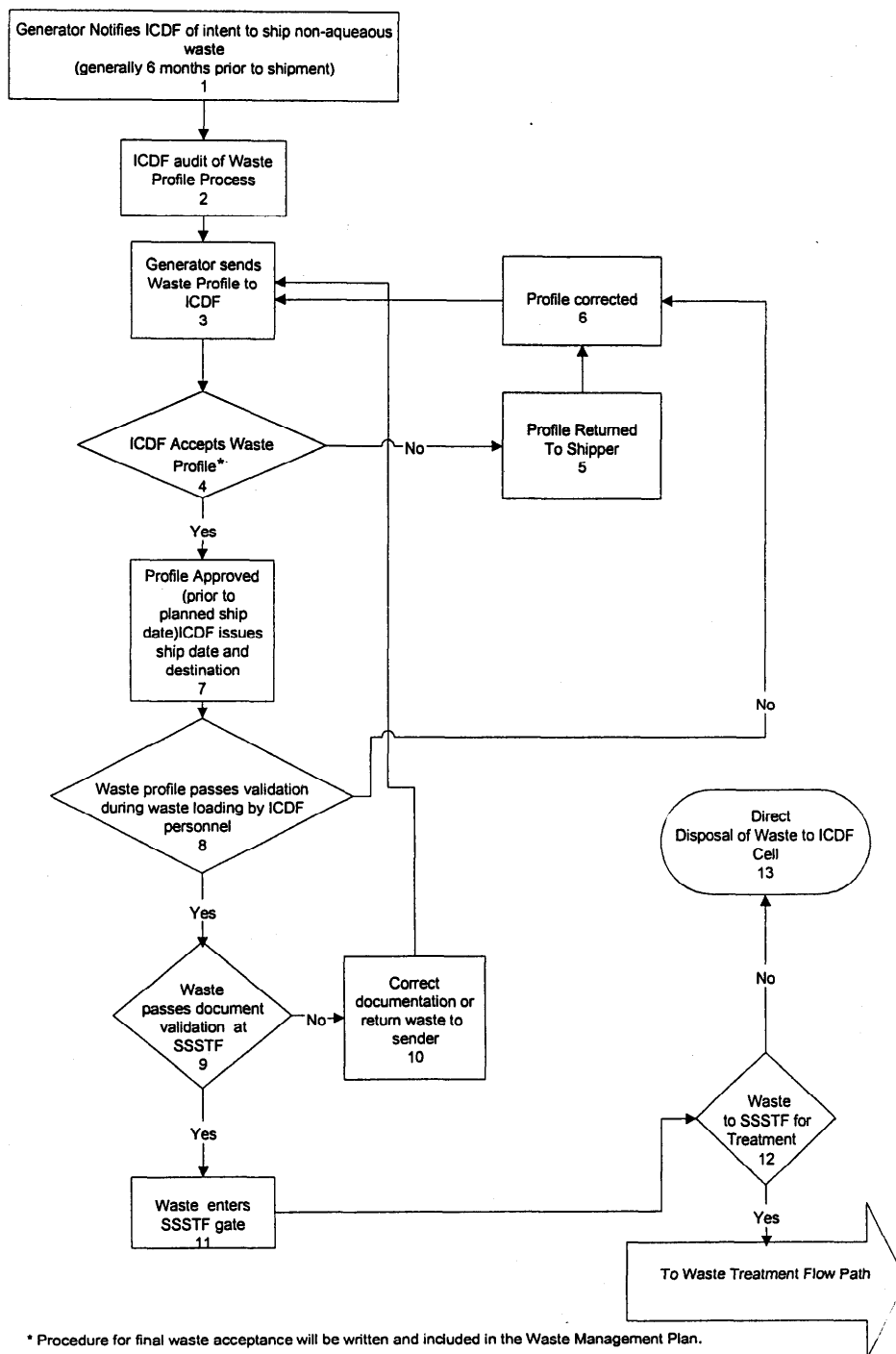


Figure 2-1. Non-aqueous Waste Flow Path.

2.1 Waste Stream Definition

EDF-1540, *SSSTF Waste Inventory Design Basis*¹² defines waste inventory and characterization information used in the design of the SSSTF. EDF-1540 provides a database summary for the storage, treatment, and disposal of the INEEL CERCLA remediation waste inventory for the SSSTF in accordance with Requirement 001 of *Technical and Functional Requirements, WAG 3 Staging, Storage, Stabilization, and Treatment Facility*¹³. The EDF summarizes the September 2000 Draft of the *CERCLA Waste Inventory Database Report for the Operable Unit 3-13 Waste Disposal Complex* (see Reference 7).

2.1.1 Non-Aqueous Waste Streams

Soil and debris are the two forms of non-aqueous waste streams in the design basis.

2.1.1.1 Soils

The majority of soils excavated from WAG 3 for disposal at the ICDF will not be subjected to Hazardous Waste Determination Requirements (IDAPA 16.01.05.006 [40 CFR 262.11]), Land Disposal Restrictions (LDRs)(IDAPA 16.01.05.011 [40 CFR 268]), or Alternative LDR Treatment Standards for Contaminated Soil (IDAPA 16.01.05.011 [40 CFR 268.49]), since they will be placed directly in the ICDF (WAG 3 is considered one single AOC for purposes of disposal at the ICDF). LDRs apply to placed contaminated soils at sites CPP-92, -97, -98, and -99. This is in compliance with *Final Record of Decision, Operable Unit 3-13, INTEC*, Revision 0, Section 8.1.3.1, "INEEL CERCLA Disposal Facility (ICDF) Goals and Requirement, Operational Requirements" (page 8-8, 12-16) (see Reference 3). Containerization and temporary storage of wastes within the AOC prior to ICDF disposal will not constitute placement.

Table 2-1 provides a list of the identified soil waste streams entering the SSSTF/ICDF facility. Table 2-1 sorts the release sites into WAG groups. A volume for each corresponding waste site and the required treatment is provided.

Based on analysis of the CWID waste streams and process knowledge, there are no waste sites that require organic treatment. However, seven sites may contain RCRA "F-listed" waste. Two of these sites (TSF-26, TSF-09/18) have maximum contaminant concentrations that are several orders of magnitude below the RCRA LDR maximum concentration limits (40 CFR 268.49 and 268.48). The other five sites (CPP-92, CPP-97, CPP-98, CPP-99, and TSF-06) may contain an "F-listed" waste, but usable contaminant data are unavailable for these sites. These five sites are assumed to not contain significant concentrations of organics based on process knowledge. Verification sampling of the waste for the "F-listed" constituents to ensure LDR concentrations are not exceeded may be required.

The OU 3-14 tank farm soils are not included in the design basis. The only exception being the Investigation-Derived Waste (IDW) from the OU 3-14 RI/FS activities in the tank farm. This is expected to be approximately 79 yd³ of waste that will be put into 35-gal drums. The exact profile is unknown but could be near the maximum concentrations for some of the spill areas being investigated. The 79 yd³ of waste is considered to be Low Volume Anomalous Waste.

Table 2-1. List of Soil Waste Generation Sites.

WAG	Site	Volume (yd ³)	Treatment Required
1	TSF-03	1,074	None
	TSF-06	5,000	None
	TSF-26	10,216	None
	TSF-09/18	4,335	None
	WRRTF-01	20,070	Stabilization
3	CPP-1/4/5	4,260	None
	CPP-03	10,940	None
	CPP-08/09	3,100	None
	CPP-10	2,300	None
	CPP-11	1,500	None
	CPP-13	4,022	None
	CPP-14	11,046	None
	CPP-19	3,780	None
	CPP-34	27,352	None
	CPP-35	311	None
	CPP-36/91	12,520	None
	CPP-37a&b	113,480	None
	CPP-44	90	None
	CPP-48	296	None
	CPP-55	310	None
	CPP-69	275	None
	CPP-92	1,197	Stabilization
	CPP-93	654	None
	CPP-97	1,500	None
	CPP-98	30	Stabilization
	CPP-99	30	Stabilization
	CPP-67	99,260	None
4	CFA-04	800	Stabilization
5	ARA-01	2,400	None
	ARA-12	2,000	Stabilization
	ARA-23	46,500	None
	ARA-25	71	Stabilization
10	BORAX-01	11,110	Stabilization
	BORAX-08	131	None
Tank Farm	IDW	79	None

"SSSTF Low Volume Anomalous Wastes" are defined as waste volumes of less than 100 yd³ that do not have adequate characterization or process knowledge to define treatment requirements. The SSSTF design acknowledges their existence but does not intend to design for these exceptions. The low volume anomalous wastes will be reviewed for possible disposal options as confirmatory data becomes available in the future. It is expected that the wastes will be processed through the SSSTF systems but may require special operating procedures due to unique characteristics of the wastes and their impact on operations and personnel safety.

2.1.1.2 Debris

Decontamination and decommissioning and demolition (D&D&D) wastes are incorporated in EDF-1540 (see Reference 12) as part of the ICDF Landfill and stabilization facilities total volume. The volume used was derived from Table 4-1 of *CERCLA Waste Inventory Database Report for the Operable Unit 3-13 Waste Disposal Complex* (see Reference 7), which reported a total of 70,657 yd³ for D&D&D wastes. The mixed low-level waste (MLLW) and hazardous waste (HW) fractions identified in the Table 4-1 of Reference 7 were deducted and sent to the stabilization facility. This deduction revised the D&D&D landfill total to 70,585 yd³. Note that wastes from D&D&D activities, which are identified in this document, may not be ICDF/SSSTF candidate wastes. The OU 3-13 ROD (see Reference 3) states that only INEEL CERCLA-generated wastes will be disposed in the ICDF. Currently, D&D&D wastes are not considered CERCLA-generated. The D&D&D wastes would have to be designated as CERCLA-generated prior to disposal at SSSTF/ICDF Complex.

Table 2-2, "List of Debris Generation Sites", provides a list of the identified debris waste streams entering the SSSTF/ICDF facility. Table 2-2 sorts the release sites into WAG groups. A volume for each corresponding waste site is provided.

2.1.2 Aqueous Waste Streams

Monitoring well purge and development water will be generated from sampling and drilling activities of WAG 3 Group 4 (perched water in the vadose zone), Group 5 (Snake River Plain Aquifer), and as identified in References 2 and 3. Generation of water is expected to begin in November 2000. The water will eventually be disposed in the ICDF evaporation pond, which is not expected to be available until mid FY 2003. Therefore, the SSA will need to plan water storage for approximately 3 years prior to the advent of SSSTF operations.

It is anticipated that a total of approximately 29,800 gal of purge water from Group 4 will be generated, beginning in November 2000. Approximately 197,000 gal of purge water will be generated from Group 5 drilling and sampling activities. It is expected that 36,000 gal of purge water will be generated from OU 3-14, using standard purging techniques.

Table 2-2. List of Debris Generation Sites.

WAG	Site	Volume (yd ³)
3	CPP-92	173
	CPP-98	220
	CPP-99	96
1	TSF-07	1
D&D&D		70,657

Table 2-3 presents the best-estimate volume for the Group 4, Group 5, and OU 3-14 waste streams. Table 2-3 categorizes the liquid waste streams by group numbers. A scheduled date and estimated volume are provided for each waste stream.

Table 2-3. Purge and Development Water Projections.

Group	Activity	Schedule	Best Estimate (gal)
4	Drilling Phase I Wells	10/31/00 to 3/07/01	5,780
4	Sampling Phase I Wells	3/08/01 to 4/06/01	1,500
4	Tracer Test	3/29/01 to 9/19/01	250
4	Drilling Phase II Wells	7/24/02 to 2/21/03	7,800
4	Sampling Year 1	4/25/03 to 8/13/03	2,900
4	Sampling Year 2	10/02/03 to 09/03/04	2,900
4	Sampling Year 3	10/04/04 to 09/30/05	2,900
4	Sampling Year 4	10/04/05 to 09/29/06	2,900
4	Sampling Year 5	10/03/06 to 09/28/07	2,900
5	INTEC Baseline GW Sampling	10/11/00 to 11/21/00	42,300
5	Micropurge Sampling	11/22/00 to 01/19/01	2,100
5	Facility Monitoring Year 1	05/25/01 to 06/26/01	21,000
5	Facility Monitoring Year 2	5/22/02 to 6/21/02	21,000
5	Facility Monitoring Year 3	5/20/03 to 6/19/03	21,000
5	Facility Monitoring Year 4	5/20/04 to 6/19/04	21,000
5	Facility Monitoring Year 5	5/20/05 to 6/19/05	21,000
5	Drilling Group 5 Wells	5/30/01 to 8/30/01	35,000
5	Vertical Profile Sampling	10/03/01 to 10/23/01	7,900
5	24-hr Pumping/Statistic Sampling	01/25/02 to 2/11/02	4,320
ICDF	Groundwater Monitoring	NA	0
OU3-14	Well Drilling	01/01/01 to 03/01/01	21,000
OU3-14	Groundwater Sampling Year 1	03/02/01 to 03/30/01	3,000
OU3-14	Groundwater Sampling Year 2	03/02/02 to 03/30/02	3,000
OU3-14	Groundwater Sampling Year 3	03/02/03 to 03/30/03	3,000
OU3-14	Groundwater Sampling Year 4	03/02/04 to 03/30/04	3,000
OU3-14	Groundwater Sampling Year 5	03/02/05 to 03/30/05	3,000
Total Volume (Gal)=			262,450

2.2 Waste Generator Responsibilities

Waste will be characterized by the WAG or remediation project intending to send waste to the ICDF Complex for disposal. Characterization of waste streams and completion of waste profiles are required before waste can be shipped to the SSSTF. Because of the required document development and review times, the generator WAG should notify the ICDF of their intent to ship waste at least 6 months in advance of shipment (see Figure 2-1, box 1). This will allow adequate time for coordination between the generator WAG and the ICDF Complex. The generating project or WAG will have enough information on the waste to know if it can go directly to the ICDF for disposal or if the waste must go to the SSSTF for treatment to meet the ICDF WAC prior to disposal.

2.2.1 Waste Characterization

The process of planning, sampling, analysis, and completion of the Waste Profile Sheets will be reviewed and/or audited by ICDF Complex personnel (see Figure 2-1, box 2). Any sampling and analysis necessary for the generator to complete the Waste Profile Sheet will be planned and performed by the generator prior to execution of the remedial action.

2.2.2 Waste Profile/Transfer Approval

The waste profile must be received, reviewed, and accepted by the ICDF Complex at least 6 weeks prior to the intended ship date for the waste to be scheduled into the SSSTF. ICDF Complex personnel will audit preparation of the waste profile. If the waste profile is approved, (see Figure 2-1, box 7) the waste will be assigned a shipping date and a destination in the ICDF or SSSTF. The destination for non-aqueous waste will be the ICDF Landfill if the waste is suitable for direct disposal or the SSSTF if the waste requires treatment prior to disposal. For non-aqueous wastes that will be treated in the SSSTF, the final disposal destination will be the ICDF Landfill or off-Site.

Waste profile verification will be performed at the remediation site (see Figure 2-1, box 8). All of the waste packaged for shipment to the SSSTF will be checked against the waste profile, visually inspected, and "fingerprinted" during the remediation, excavation, and/or loading process to ensure that the waste matches the submitted waste profile. Fingerprinting will consist of non-intrusive analysis such as a surface radiological survey. If the waste profile verification and fingerprinting activities indicate that the waste does not match the profile, the waste will be set aside for resolution of the identified problem. When the issue is resolved, the waste will be shipped to the ICDF Complex.

2.2.3 Waste Transfer

The waste generator will be responsible for coordination with the appropriate transportation facilitators to arrange shipment to the ICDF Complex either at the SSA prior to construction of the SSSTF, or the SSSTF, depending on timing.

2.3 Waste Acceptance

Upon receipt of waste at either the SSA or the SSSTF, the paperwork documentation accompanying each shipment of waste will be reviewed (see Figure 2-1, box 9). The waste shipment will be double-checked against accompanying documentation for items such as number of containers, container integrity, bar codes, and waste codes.

2.3.1 Staging and Storage Annex Waste Acceptance

The SSA facility is intended for the staging of CERCLA-generated waste pending the opening of the ICDF Complex. Waste acceptance at the SSA is fully described in the DOE/ID-10800, *Waste Management Plan for the Staging and Storage Annex*¹⁴. The following discussion is summarized from the plan.

The SSA will accept only CERCLA-generated waste, and a generator must understand the basic WAC to ensure proper management of the waste. Generators must determine whether the wastes are acceptable for storage at the SSA before the generator completes the Waste Profile Sheet. All wastes received at the SSA must be packaged and properly analyzed by the generator prior to acceptance. Waste that does not meet the SSA waste WAC may be accepted on a case-by-case basis, requiring proper authorization and approval.

A formal characterization/designation process for radioactive and/or RCRA-regulated wastes will be implemented for the SSA. Waste streams will be identified and designated, and the LDR status determined during the planning stages of the project and designated prior to shipment. Prior to uncharacterized waste being shipped to the SSA, a waste profile will be completed utilizing process knowledge. Further characterization while such waste is at the SSA may be required.

2.3.2 SSSTF Waste Acceptance

Waste entering the ICDF Complex at the SSSTF will be controlled on the basis of source, physical form, contaminant concentration, and activity levels. A uniform waste acceptance process will be developed and implemented that includes planning, waste profiling and certification, waste shipment, waste receipt, inspection, and disposal. The objective of the waste verification process is to ensure that all waste placed in the ICDF Landfill or accepted at the evaporation pond meets the respective WAC for those facilities. Characterization of waste streams and completion of a waste profile are required before waste can be accepted into the SSSTF.

If the documentation is incomplete or incorrect, issues with the documentation will be resolved, or the waste will be returned to the shipper (see Figure 2-1, box 10). An area near the entrance to the SSSTF will be provided for waste transport vehicles while documentation discrepancies are resolved.

If the documentation is correct, the waste will enter the SSSTF gate (see Figure 2-1, box 11). The transport vehicle and the waste will be weighed utilizing drive-on scales and the information entered into the facility data records prior to disposition of the waste.

2.4 Waste Disposition

Waste will arrive at the ICDF Complex from various INEEL CERCLA investigative, remedial, and removal sites. Identification of these sites, the waste contaminants, and the candidate treatment are covered in EDF-1540, *Waste Inventory Design Basis* (see Reference 12). The processes these waste streams undergo at the SSSTF are detailed in EDF-1547, *SSSTF Operational Scenario and Process Flows*¹⁵.

2.4.1 Waste Staging

The SSSTF is designed for a level waste flow rate to the facility, requiring only staging and selective storage. For further information on waste staging and storage, see EDF-1545, *SSSTF Waste Storage and Staging*¹⁶.

A holding pad for waste transport paper processing will be located immediately inside the fence of the facility. Staging pads are provided for a minimal number of containers of waste to accommodate unforeseen delays in processing and TCLP testing at the stabilization treatment facility. Two pads near the treatment facility provide staging for 4 days of waste awaiting treatment, and 6 days of waste awaiting post-treatment verification testing results.

Storage for the well development/purge water will be provided at the SSA; no additional storage is needed at the SSSTF.

Water from equipment decontamination will be filtered, separated, and pumped to the ICDF evaporation pond. Storage of the decontamination water is not required.

2.4.2 Waste Treatment

The SSSTF waste treatment function will provide for treatment for non-aqueous waste as well aqueous waste as depicted in Figure 2-2.

Analysis of the waste streams identified in the *SSSTF Waste Inventory Design Basis*, EDF-1540 (see Reference 12), and the regulatory requirements for the wastes resulted in simplifying the complexity of the original conceptual design documented in the *Conceptual Design Report for the Staging, Storage, Stabilization, and Treatment Facility* (see Reference 10). These changes include the following;

- Removal of the neutralization and organic treatment processes
- Elimination of a dual auger shredder for sizing waste.

2.4.2.1 Non-Aqueous Waste Treatment. Evaluation for the treatment of non-aqueous waste included stabilization, organic, and sizing.

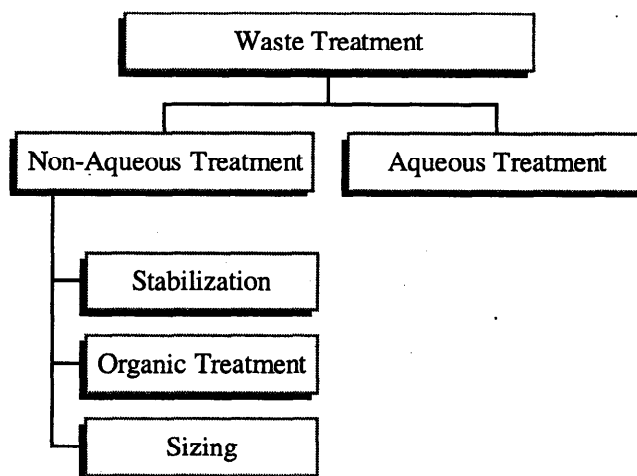


Figure 2-2. Waste Treatment Functions.

2.4.2.1.1 Stabilization—The SSSTF is to treat CERCLA remediation waste as necessary, for disposal in the ICDF Landfill. Review of the SSSTF Waste Inventory Design Basis, EDF-1540 (see Reference 12), and regulatory requirements show that the only treatment method required for this waste is stabilization. Stabilization options and methods are discussed in EDF-1542, Stabilization Treatment Process Selection ¹⁷.

Treatment will be performed in a stabilization batch plant utilizing a mixing basin and backhoe configuration in a covered structure for environmental control. The plant will contain the necessary equipment to transfer and mix the stabilized waste. The stabilized waste will then be taken to the ICDF Landfill for disposal. Waste batches that require sampling will be placed on a holding pad until sample results are received that confirm acceptability of the stabilized waste.

2.4.2.1.2 Organic Treatment—As the waste inventory for the SSSTF was further refined and the regulatory requirements evaluated, it became apparent that there was no waste in the inventory that required treatment for organics. This portion of the treatment processes of the SSSTF has been removed from the design.

2.4.2.1.3 Sizing—The need for sizing pertains strictly to debris, and sizing capabilities for the SSSTF remain as an unresolved issue (see Section 1.3). Further study is required before a recommendation can be suggested. A Debris Treatment Evaluation will be developed and presented to as part of the Final Preliminary (30%) Design Report. This report will include a recommendation for waste sizing.

2.4.2.2 Aqueous Waste Treatment. No storage is provided in the SSSTF design for well development/purge water. Regulatory requirements evaluation of the water and the evaporation pond determined that all well development/purge water will be accepted at the pond without treatment or need for sampling. Storage at the SSA, which will be administered as part of the SSSTF, will be available if needed.

2.4.3 Waste Disposal

Non-aqueous waste will be disposed of either on-Site in the ICDF Landfill or at an approved off-Site RCRA Treatment Storage and Disposal (TSD) facility. Aqueous waste will be disposed of in the evaporation pond at the ICDF Complex.

2.4.3.1 Landfill Disposal. Although disposal operations are outside the scope of the SSSTF, the following description outlines the basic disposal processes at the ICDF used by the SSSTF design team.

Landfill wastes and treated stabilization wastes will be delivered through the SSSTF to the ICDF Landfill for disposal. An operator will dump the loads while another sprays water to control dust and a radiological control technician monitors the operation. The roll-off container or dump truck tailgate will then be sprayed with water.

The transport vehicles will then undergo a radiological vehicle survey. Trucks that require decontamination will be taken to the decontamination station, cleaned, and resurveyed. Empty waste transfer vehicles released by radiological control personnel will then return to the waste generating site through the SSSTF.

Since disposal of well development/purge water in the ICDF evaporation pond does not affect the SSSTF processing rates or facility design, a description of the process is not part of this document.

Disposal operations for special case waste will be determined on a case-by-case basis by operational personnel when the nature of the waste material and forms is understood.

2.4.3.2 Off-Site Waste Disposal. Special case waste will be segregated from waste requiring treatment and/or disposal and will be staged in locations specific to their waste type. Disposal operations for special case waste will be determined when the nature of the waste material and forms is understood. If the waste cannot be treated for disposal at the ICDF, an approved RCRA treatment, storage, and/or disposal (TSD) facility will be identified. The waste may require repackaging in accordance with the requirements of the specific receiving TSD facility.

Special case wastes with TRU material concentrations greater than 10 nCi/g will not be disposed of in the ICDF Landfill. With no TSD identified for this waste, it is assumed to require long term storage at the SSA.

2.4.3.3 Aqueous Disposal. The evaporation pond is designated as a component of a Corrective Action Management Unit (CAMU). The evaporation pond, therefore, can accept aqueous waste streams generated within the ICDF and INEEL WAGs without treatment. There are currently no aqueous wastes in the design basis inventory that will require treatment in the SSSTF prior to disposal in the evaporation pond. In the unlikely event that aqueous waste that do not meet the evaporation pond WAC are generated, these wastes will be treated at the SSSTF as stabilization make-up water for disposal at the ICDF Landfill.

3. PRELIMINARY DESIGN CRITERIA

These preliminary design criteria establish the specific design requirements and criteria for the SSSTF. This document provides traces between the requirements contained herein and in TFR-17, *Technical and Functional Requirements for the WAG 3 Staging, Storage, Stabilization, and Treatment Facility*¹³ (T&FR). Traceability is established through the T&FR to the requirements presented in the OU 3-13 ROD³ and the *Remedial Design/Remedial Action Scope of Work*². The preliminary design criteria thus provide a development process anchor, ensuring that the requirements baseline can be maintained, even in the event that future system design iterations change the nature of the system or processes.

Although ultimately included as part of the SSSTF, requirements for the SSA are not included in the Preliminary Design Criteria. Since the SSA already exists at INTEC, no design requirements are associated with the facility. Any additional requirements imposed on the SSA will be addressed administratively.

This section describes the SSSTF and contains the requirements that establish the functional baseline for the system. Not all statements in this section are requirements. Requirements are specifically identified by the inclusion of one and only one of the terms “shall” or “may”. These terms have very specific and legal definitions. The use of the term “shall” indicates a mandatory provision. The use of the term “may” indicates a provision whose satisfaction is optional for the design. Descriptive and non-binding information statements specifically do not include a “shall” or “may”.

Each of the design criteria includes a “Requirement Source” and “Notes” section. The “Requirement Source” section identifies the specific T&FR requirement(s) implemented by the criteria. In addition, it identifies regulations and DOE Orders that contain requirements implemented by the criteria. The “Notes” section provides additional justification and information on each of the criteria.

3.1 General Site and Utilities

This section identifies the requirements and design criteria imposed on the SSSTF regarding siting of the SSSTF and provisions for utilities. The design criteria trace to the T&FR requirement(s) implemented by individual criterion in the “Requirement Source” section associated with each criterion.

1. The SSSTF shall be designed as a Radiological Facility, Low Hazard Facility.

Requirement Source: T&FR Section 2.2; DOE-STD-1027-92; DOE 5480.23; DOE-ID N 420.A1; DOE-EM-STD-5502-94

Notes: Per EDF-ER-226, *Staging, Storage, Stabilization, and Treatment Facility Preliminary Hazard Categorization* (draft), currently identifies the SSSTF as a Category 3 Nuclear Facility. However, the EDF further states that as a result of the forthcoming facility accident analysis, the entire Complex (including the SSSTF) will be operated as a Radiological, Low Hazard Facility. Additionally, based on preliminary information from the safety classification of structures, systems and components (SSCs), determined in accordance with DOE 5480.30, DOE 5481.1B, and DOE-STD-3009-94, the SSSTF will have no safety class, nor safety significant systems. Further, no SSCs that perform an emergency function to preserve health and safety during and after a natural phenomena hazards (NPH) event, are expected to be identified in the forthcoming Auditable Safety Analysis.

2. The SSSTF shall be designed as a NPH category PC-1 facility.

Requirement Source: DOE-STD-1020-94; DOE-STD-1021-93

Notes: This classification is documented in EDF-1546.

3. All SSSTF roadways shall be designed and constructed in accordance with DOE-ID Architectural Engineering Standards and State of Idaho Transportation Department, Division of Highways, Standard Specification for Highway Construction.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001, T&FR Section 3.1.1, Requirement Number 002

Notes: Anticipated roadways include between the SSSTF and Lincoln Blvd., SSSTF and INTEC, and SSSTF and the ICDF Landfill. The roadway between Lincoln Blvd. and the SSSTF will eliminate excessive truck traffic related to the SSSTF on the main access road to INTEC. Similarly, the roadway between SSSTF and INTEC will eliminate excessive truck traffic on the main access road to INTEC. The existing access road to the SSSTF area cannot be used for this purpose due to its proximity to power lines.

4. The SSSTF shall limit worker radiological exposure to 500 mrem total (internal and external combined) per year.

Requirement Source: 10 CFR 835.202; 10 CFR 835.1001; DOE 5484.1: I.8; DOE-ID N 221.1: 6.a; PRD-183, INEEL Radiological Controls Manual, Section 381, page 3-29

5. The SSSTF shall include design provisions to meet As Low As Reasonably Achievable (ALARA) and radiological goals.

Requirement Source: 10 CFR 835.202; 10 CFR 835.1001; DOE 5484.1: I.8; DOE-ID N 221.1: 6.a; PRD-183, INEEL Radiological Controls Manual, Section 381, page 3-29

6. The SSSTF shall be designed to confine and control loose surface and airborne radiological contamination.

Requirement Source: 10 CFR 835.1001; DOE O 440.1A: 4; PRD-183, INEEL Radiological Controls Manual, Section 316, pg. 3-6

Notes: EDF-1542

7. The SSSTF shall include design provisions to limit (through physical design features and administrative control) emissions of radionuclides to the ambient air to levels below that which would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/year.

Requirement Source: 40 CFR 61.92; DOE M 435.1-1

8. The SSSTF shall include design provisions to control dust to a level to ensure compliance with the American Conference of Governmental Hygienists (ACGIH) standards.

Requirement Source: IDAPA 58.01.01.650; IDAPA 58.01.01.651

9. The SSSTF shall provide means to prevent the unknowing entry, and minimize the possibility for the unauthorized entry, onto the facility.

Requirement Source: 10 CFR 835.502; IDAPA 58.01.05.008 [40 CFR 264.14(a), (b), (c)]

Notes: Fences with locking gates and barriers will be required to prevent unauthorized entry. A sign stating "Danger – Unauthorized Personnel Keep Out" must be posted at each entrance to the active portion of a facility.

10. The SSSTF design shall accommodate necessary radiological buffer area (RBA) for contamination control next to any entrance or exit from a contamination, high contamination, or airborne radioactivity area.

Requirement Source: DOE-STD-1098-99, Part 2, Subpart 233

Notes: To minimize the spread of contamination and to limit doses to employees. It is anticipated that a RBA will be required at the treatment facility only.

11. No controls shall be installed at any radiological exit that would prevent rapid evacuation of personnel under emergency conditions. Such areas shall be posted as required.

Requirement Source: 10 CFR 835.501; DOE-STD-1098, Part 3

Electrical Power

12. The SSSTF shall be provided 480 Volt, three phase, 60 Hertz, normal electrical power in accordance with the DOE-ID Architectural Engineering Standards.

Requirement Source: T&FR Section 3.3.1, Requirement Number 021; DOE-ID Architectural Engineering Standards

Notes: As the design progresses, an interface agreement will be developed between the SSSTF and the INTEC facilities. EDF-1548, *Siting Study*, defines the approximate power needs as 2500 kW. The actual total amount of normal power will be documented during the 90% design efforts.

13. The SSSTF shall be provided 480 Volt, three phase, 60 Hertz, standby power in accordance with the DOE-ID Architectural Engineering Standards.

Requirement Source: T&FR Section 3.3.1, Requirement Number 022; DOE-ID Architectural Engineering Standards

Notes: Standby power will be provided in accordance with the National Electric Code, which carries very specific requirements for standby power. EDF-1548, *Siting Study*, defines the approximate standby power needs as 500 kW. The actual total amount of standby power will be documented during the 90% design efforts.

Sewer and Water

14. The SSSTF shall be provided potable water in accordance with DOE-ID Architectural Engineering Standards to support all necessary potable water needs, including restrooms, drinking fountains, sinks, and showers.

Requirement Source: T&FR Section 3.3.1, Requirement Number 023; DOE-ID Architectural Engineering Standards

15. The SSSTF shall be provided raw water in accordance with DOE-ID Architectural Engineering Standards.

Requirement Source: T&FR Section 3.3.1, Requirement Number 023; DOE-ID Architectural Engineering Standards

16. The SSSTF shall be provided a sanitary sewer line in accordance with DOE-ID Architectural Engineering Standards capable of handling peak demand from sanitary facilities installed at the SSSTF.

Requirement Source: T&FR Section 3.3.1, Requirement Number 023; DOE-ID Architectural Engineering Standards

Fire Protection and Detection

17. The SSSTF shall be provided with fire water in accordance with the DOE-ID Architectural Engineering Standards.

Requirement Source: T&FR Section 3.3.1, Requirement Number 018; 29 CFR 1910.157 - .159; 29 CFR 1910.163; 29 CFR 1910.165; 40 CFR 264.32; DOE Order 420.1: 4.2; DOE-ID Architectural Engineering Standards

18. The SSSTF shall be provided with a fire detection system with remote alarm reporting capabilities.

Requirement Source: T&FR Section 3.3.1, Requirement Number 020; 29 CFR 1910.157 - .159; 29 CFR 1910.163; 29 CFR 1910.165; 40 CFR 264.32; DOE Order 420.1: 4.2; DOE-ID Architectural Engineering Standards

19. A means of egress shall be provided from the facility.

Requirement Source: DOE O 420.1: 4.2.2; DOE O 440.1A: 2.a

Telephone and Data Communications

20. The SSSTF shall provide conductors for telephone and data communication services.

Requirement Source: T&FR Section 3.3.1, Requirement Number 019; 29 CFR 1910.165; 40 CFR 264.32

21. Telephones shall be provided at the exterior of all personnel exits of the process facilities to support emergency notifications.

Requirement Source: T&FR Section 3.3.1, Requirement Number 019; 29 CFR 1910.165; 40 CFR 264.32

Notes: Based on Lessons Learned.

Heating, Ventilation, and Air Conditioning

22. The SSSTF process building shall be provided with ventilation capable of providing a minimum air exchange rate based on a Uniform Building Code (UBC) F-2 occupancy classification.

Requirement Source: 29 CFR 1910.178; DOE-ID Architectural Engineering Standards; DOE-ID Notice 430.1A

Notes: Per an e-mail from D. Nishioka, Project Architect, to J. Case and C. Reid, Project Systems Engineers (10/25/00, Subject Occupancy Classification for the Treatment Facility), "The SSSTF facility occupancy classification is determined per the recognized building code, UBC. Based on the present scope and the wastes that have been identified along with their quantities needing staging, storage or treatment, the classification is currently identified as a UBC, F-2 for the process facility." This is a change from the H-4 classification stated in the Conceptual Design Report.

23. The ventilation system for the SSSTF process areas shall be interlocked with the airborne radiological contamination monitoring to ensure radiological releases are controlled.

Requirement Source: 10 CFR 835.404; 10 CFR 835.1001

24. The SSSTF treatment building ventilation system shall accommodate radiological monitoring.

Requirement Source: 40 CFR 61.92; 40 CFR 61.93; DOE 5400.5: II.1

25. The SSSTF HVAC system shall provide negative air pressure in relation to the external environment.

Requirement Source: DOE-ID Architectural Engineering Standards

Notes: EDF-1542. The negative air pressure will assist in the confinement of airborne radiological and hazardous constituents.

Storm Water/Decontamination Water

26. Storm water from the SSSTF shall be discharged in accordance with INEEL Storm Water Pollution Prevention Plan for Construction Activities (SWPPP-CA) (DOE/ID-10425) and the INEEL Storm Water Pollution Prevention Plan for Industrial Activities (SWPPP-IA) (DOE/ID-10431).

Requirement Source: 40 CFR 122; DOE G 420.1-1: 4.4; DOE/ID-10425; DOE/ID-10431

27. An Emergency Notification System (ENS) shall be provided inside of buildings that have an occupancy load of more than 10 people. The ENS shall be independent from the system at INTEC and will be keyed from the administration facility based upon radio signals received from WCC and the fire alarm system. Buildings having an occupancy load of 10 or fewer people may utilize direct voice communications in lieu of an ENS.

Requirement Source: 29 CFR 1910

3.2 Administrative Function

This section identifies the requirements and design criteria imposed for the Administrative Function of the SSSTF. Included in this Administrative Function are weighing and verification of waste coming into or out of the facility, determination of waste disposition, administering treatment verification and other quality activities, processing and maintenance of required records associated with the waste disposition, and performing overall complex management functions.

1. The SSSTF shall be designed to process waste based on load leveling scenarios described in EDF-1547.

Requirement Source: T&FR Section 3.1.5, Requirement Number 048

2. The SSSTF decontamination, treatment, and landfill operations shall be designed for four operations days per week, from March to November of each year.

Requirement Source: T&FR Section 3.1.5, Requirement Number 027; T&FR Section 3.1.5, Requirement Number 028

Notes: The remainder of the SSSTF will remain operational year round.

3. The SSSTF shall be designed in accordance with applicable Occupational Safety and Health Administration (OSHA) requirements.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 016; T&FR Section 3.1.4, Requirement Number 025; 29 CFR 1910; 29 CFR 1926; DOE O 440.1A

4. The SSSTF shall be designed and constructed in accordance with the applicable DOE-ID Architectural Engineering Standards.

Requirement Source: T&FR Section 3.1.4, Requirement Number 026; DOE-ID Architectural Engineering Standards

5. The SSSTF shall have an administration facility for operations personnel.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; T&FR Section 3.1.2.1, Requirement Number 016; T&FR Section 3.1.2.1, Requirement Number 034; T&FR Section 3.1.5, Requirement Number 048; T&FR Section 3.1.5, Requirement Number 049; T&FR Section 3.3.1, Requirement Number 024

Notes: EDF-1547

6. The SSSTF shall provide a holding area to accommodate parking of transport vehicles during initial visual inspection.

Requirement Source: T&FR Section 3.1.1.1, Requirement Number 001; T&FR Section 3.1.1.1, Requirement Number 002; T&FR Section 3.1.1, Requirement Number 006; T&FR Section 3.1.1, Requirement Number 09; T&FR Section 3.1.1, Requirement Number 034; T&FR Section 3.1.2.2.2, Requirement Number 010; T&FR Section 3.1.5, Requirement 048

Notes: EDF-1547

7. The SSSTF holding area shall provide space for a minimum of 10 trucks.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2.1, Requirement Number 006; T&FR Section 3.1.2.1, Requirement Number 034; T&FR Section 3.1.2.2.2, Requirement Number 010; T&FR Section 3.1.5, Requirement Number 048

Notes: EDF-1545; EDF-1547

8. The SSSTF shall be capable of inspection of waste transported by flat bed trucks with roll-on/roll-off containers, wood or metal boxes, bags, drums, and super-sacks, or end dump trucks.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 034

Notes: EDF-1543

9. The SSSTF shall process approximately 484,000 yd³ of CERCLA non-aqueous waste as defined in the CWID (see Reference 7).

Requirement Source: T&FR Section 3.1.1, Requirement Number 001

Notes: The CWID inventory has been interpreted and documented in EDF-1540 for use during the SSSTF design.

10. The SSSTF shall process approximately 300,000 yd³ of non-aqueous waste from the WAG 3 AOC.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001

Notes: The volume of waste is documented in EDF-1540.

11. The SSSTF shall process approximately 184,000 yd³ of non-aqueous waste from outside the WAG 3 AOC.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001

Notes: The volume of waste is documented in EDF-1540.

12. The SSSTF shall process non-aqueous waste at a maximum peak rate of 572 yd³ per ten-hour shift.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 015

Notes: EDF-1547

13. The SSSTF shall process approximately 71,000 yd³ of D&D&D wastes from outside of the AOC.

Requirement Source: Project Management Decision

Notes: D&D&D waste is included in EDF-1540. This waste may be disposed of primarily directly to the landfill. D&D&D is not currently defined as CERCLA remediation waste. D&D&D waste does not drive design if processed during non-peak years, it does, however, drive operational waste processing procedures.

14. The SSSTF shall process approximately 3,200 yd³ non-aqueous waste from WAG 3 that has triggered placement, as defined by RCRA.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001

Notes: EDF-1540

15. The SSSTF shall process bulk non-aqueous waste in 20-yd³ volumes using roll-on/roll-off containers containing 13 yd³ of waste.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2.2, Requirement Number 035

Notes: EDF-1547.

16. The SSSTF shall process bulk non-aqueous waste in bulk dump trucks.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2.2, Requirement Number 035

Notes: EDF-1547.

17. The SSSTF shall process drums containing waste.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2.2, Requirement Number 035

Notes: EDF-1547. Facility will be designed to accept waste in this container type; however, during peak processing rate years, container types accepted will be restricted to roll-on/roll-off containers or larger transport system.

18. The SSSTF shall process non-aqueous waste in super-sacks.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2.2, Requirement Number 035

Notes: EDF-1547. Facility will be designed to accept waste in this container type; however, during peak processing rate years, container types accepted will be restricted to roll-on/roll-off containers or larger transport system.

19. The SSSTF shall receive and process currently identified and packaged non-aqueous waste residing in 4 X 4 X 8-ft wooden boxes.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2.2, Requirement Number 035

Notes: EDF-1547.

20. The SSSTF administration areas shall be UBC Group B occupancy.

Requirement Source: T&FR Section 3.1.2, Requirement Number 016; T&FR Section 3.1.4, Requirement Number 026; DOE-ID Architectural Engineering Standards

Notes: CDR Section 5.1.2

21. The SSSTF process facility shall NOT be designed as a TRU waste handling facility.

Requirement Source: T&FR Section 1.6, Assumption A; T&FR Section 1.6, Assumption A-1; T&FR Section 3.1.1, Requirement Number 001

Notes: EDF-1542. Any waste received at the SSSTF that has TRU constituents greater than 10 nCi/g will be stored at the SSA facility at INTEC. The SSA is an existing facility; therefore is NOT addressed in this preliminary design criteria document.

Load Weighing

22. The SSSTF shall weigh waste transport vehicles entering and leaving the SSSTF.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 007; T&FR Section 3.1.2.1, Requirement Number 009; T&FR Section 3.1.2.1, Requirement Number 034

23. The SSSTF weigh station shall accommodate standard commercial tractor-trailer units.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 006; T&FR Section 3.1.2.1, Requirement Number 007

Notes: Randy L. Davison e-mail to Clinton Kingsford, dated 9/12/00, Subject Design Clarification.

24. The SSSTF weigh station scales shall have a capacity of 50 tons with an accuracy of within 100 lbs. at full scale.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.2, Requirement Number 006; T&FR Section 3.1.2, Requirement Number 007

Notes: EDF-1545; EDF-1547

Load Verification

25. The SSSTF shall process for treatment or disposal only that waste with accepted waste profiles.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001; T&FR Section 3.1.1, Requirement Number 002; T&FR Section 3.1.2.1, Requirement Number 009; T&FR Section 3.1.2.3, Requirement Number 014

Notes: EDF-1542

26. Radioactive exposure levels for CERCLA waste received at the SSSTF shall be within the INEEL administrative control established by the INEEL Radiological Controls Manual.

Requirement Source: PRD-183, INEEL Radiological Controls Manual, Section 211, pg. 2-3; 10 CFR 835; DOE G 435.1-1; DOE M 435.1-1; DOE O 420.1; DOE O 435.1; DOE O 440.1A

Notes: EDF-1542

Determination of Disposition

27. The SSSTF shall provide a waste handling area for repackaging waste for off-Site disposal.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 044

Notes: EDF-1547

Records Management

28. The SSSTF shall include a document storage room with one-hour fire separation from the rest of the facility.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009

Notes: CDR Section 5.1.4

29. The SSSTF shall track and maintain status of received waste.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309 (a) and (b)

30. Non-aqueous waste received at the SSSTF shall be uniquely identified.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309(a) and (b)

31. Aqueous waste received at the SSSTF shall be uniquely identified.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309(a) and (b)

32. The SSSTF shall track weight data of non-aqueous waste received at the SSSTF.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309(a) and (b)

33. The SSSTF shall uniquely identify waste that has been stabilized.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309(a) and (b)

34. The SSSTF shall trace uniquely identified stabilized waste to uniquely identified non-aqueous waste originally received at the SSSTF.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309(a) and (b)

35. The SSSTF shall maintain data regarding waste disposal locations at the ICDF Landfill.

Requirement Source: T&FR Section 3.1.2.1, Requirement Number 009; 40 CFR 264.73; 40 CFR 264.309(a) and (b)

3.3 Staging and Storage Function

This section identifies the requirements and design criteria imposed for the Staging and Storage Function of the SSSTF. Included in this Staging and Storage Function are off-loading and/or on-loading of waste and supplies and staging waste for treatment and/or disposal.

1. The SSSTF staging areas shall be designed to meet the DOE-ID Architectural Engineering Standards for staging of the wastes identified in EDF-1540.

Requirement Source: T&FR Section 3.1.2.2.2, Requirement Number 010; T&FR Section 3.1.2.2.3, Requirement Number 012

Notes: EDF-1540, EDF-1545. The CWID inventory has been interpreted and documented for the SSSTF in EDF-1540, Revision DRAFT.

2. The SSSTF staging areas shall stage containers holding only wastes that do not contain free liquids (per Paint Filter Liquids Test SW-846 Method 9095).

Requirement Source: 40 CFR 264.175; 40 CFR 264.314(c)

Notes: Wastes containing free liquids will be addressed as a special case scenario. The SSSTF staging area will stage containers holding wastes containing liquids on a special case-by-case basis, and, if necessary, will use the appropriate containment such as drip pans for these containers. The SSSTF will apply the exemption under 40 CFR 264.175(c) and (d).

3. The SSSTF staging areas shall NOT stage containers holding wastes with F020, F021, F022, F023, F026, and F027 listed wastes.

Requirement Source: 40 CFR 264.175

Notes: Wastes containing F020, F021, F022, F023, F026, and F027 listed wastes will be addressed as a special case scenario. Such listed wastes are not currently in the CWID as documented by EDF-1540. The SSSTF will apply the exemption under 40 CFR 264.175(c) and (d).

4. The SSSTF staging areas shall elevate or otherwise protect staged containers from coming in contact with accumulated liquid.

Requirement Source: 40 CFR 264.175

Notes: The SSSTF will apply the exemption under 40 CFR 264.175(c) and (d).

5. The SSSTF shall provide an enclosed facility for waste handling.

Requirement Source: T&FR Section 3.1.2.2.3, Requirement Number 012; T&FR Section 3.1.2.2.3, Number 040; DOE-ID Architectural Engineering Standards

Notes: EDF-1545. Due to the dynamic nature of the CWID inventory to this point, the inventory will be re-evaluated against the hazardous waste regulations and DOE-ID Architectural Engineering Standards to determine any special design considerations or administrative controls required for design of the handling facility operation. The CWID inventory has been interpreted and documented for the SSSTF in EDF-1540, Revision Draft. The inventory will be re-evaluated during the 90% design phase.

6. The SSSTF shall provide temporary storage for low volume anomalous waste.

Requirement Source: T&FR Section 3.1.1, Requirement Number 001

Notes: EDF-1547. Low volume anomalous waste is defined as waste which is currently in the waste inventory with a total volume of less than 100 yd³ such that it does not warrant inclusion of special design considerations. Such temporary storage of low volume anomalous waste will be controlled administratively.

7. The SSSTF shall provide temporary storage for approximately 60 m³ of waste with transuranic constituents greater than 10 nCi/g in the SSA.

Requirement Source: T&FR Section 3.1.2.2.3, Requirement Number 012; T&FR Section 3.1.2.2.3, Requirement Number 040

Notes: EDF-1547, EDF-1545. This waste will be received from the OU 3-14 RI/FS Work Plan Phase I Investigation (INTEC tank farm investigation-derived waste) and has not been characterized at this time. There is a potential that this waste is contaminated with TRU constituent concentrations of greater than 10nCi/g. In addition, although this preliminary design criteria only addresses design requirements for the SSSTF, not the SSA (an existing facility at INTEC that will be incorporated into the SSSTF when SSSTF becomes operational), the criteria does identify the different waste streams and approximate volumes that will be received through the SSSTF.

8. The SSSTF staging area slabs shall be designed to withstand loads from loaded roll-on/roll-off containers.

Requirement Source: 29 CFR 1910.22

Notes: Staging area slabs will be subjected to loads from filled containers and moving equipment. Slabs will be designed to minimize cracking and breaking.

9. The SSSTF staging area shall be designed waste to accommodate personnel movement, container inspection, and emergency response equipment.

Requirement Source: T&FR Section 3.1.2.2.1, Requirement Number 035; 29 CFR 1910.176; 40 CFR 264.35; 40 CFR 264.174; IDAPA 58.01.05.008

10. The SSSTF shall provide a TSCA-compliant storage area for storage of a minimum of 13 yd³ of packaged wastes containing PCBs in excess of 50 ppm.

Requirement Source: T&FR Section 3.1.2.2.1, Requirement Number 035; 40 CFR 761.50(b)(7); 40 CFR 761.65

Notes: EDF-1545. Although no waste identified in EDF -1540 indicates PCB contamination in excess of 50 ppm, some waste does contain PCBs. Storage for PCB-contaminated waste is being provided per Project Management direction in case higher-than-expected levels of PCBs are encountered.

11. The SSSTF storage areas shall provide an area for storage of PCBs which has adequate flooring.

Requirement Source: T&FR Section 3.1.2.2.1, Requirement Number 035; 40 CFR 761.50; 40 CFR 761.60; 40 CFR 761.65; IDAPA 58.01.02.800; IDAPA 58.01.05.008

Notes: If the PCB-contaminated waste is determined to be also radiologically contaminated, the storage area will not require a minimum six-inch curb.

12. The SSSTF storage areas shall provide an area for storage of PCBs which provides a containment volume equal to at least two times the internal volume of the largest PCB container or 25% of the total internal volume of all PCB containers, whichever is greater.

Requirement Source: T&FR Section 3.1.2.2.1, Requirement Number 035; 40 CFR 761.50; 40 CFR 761.60; 40 CFR 761.65; IDAPA 58.01.02.800; IDAPA 58.01.05.008

Notes: Although PCB/radioactive wastes are not required to be stored in an area with a minimum six-inch curbing, the floor and curbing must still provide a containment volume equal to at least two times the internal volume of the largest PCB container or 25% of the total internal volume of all PCB containers stored, whichever is greater.

13. The SSSTF shall provide a staging area for a minimum of 24 filled 20 yd³ roll-on/roll-off containers and a maximum of 28 filled 20 yd³ roll-on/roll-off containers of waste awaiting treatment.

Requirement Source: T&FR Section 3.1.2.23, Requirement Number 012

Notes: Project Management decision documented in e-mail from Randy L. Davison, PM, to Clinton Kingsford, dated 9/12/00. The minimum 24 containers is based on a projected typical 4-day volume accumulation.

14. The SSSTF shall provide temporary staging areas for a minimum of 36 20 yd³ roll-on/roll-off containers and a maximum of 42 20 yd³ roll-on/roll-off containers of stabilized waste, pending receipt of sample analysis results, after treatment is performed.

Requirement Source: T&FR Section 3.1.2.2.1, Requirement Number 010

Notes: Project Management decision documented in e-mail from Randy L. Davison, PM, to Clinton Kingsford, dated 9/12/00.

15. The SSSTF shall transfer stabilized waste that meets TCLP limits to the ICDF Landfill.

Requirement Source: T&FR Section 3.1.2.2.1, Requirement Number 035

16. The SSSTF shall reprocess stabilized waste that fails to meet TCLP limits.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 015

17. The SSSTF process and storage areas shall be designed as a UBC Group F-2 occupancy.

Requirement Source: DOE-ID Architectural Engineering Standards

Notes: Per an e-mail from D. Nishioka, Project Architect, to J. Case and C. Reid, Project Systems Engineers (10/25/00, Subject Occupancy Classification for the Treatment Facility), "The SSSTF facility occupancy classification is determined per the recognized building code, UBC. Based on the present scope and the wastes that have been identified along with their quantities needing staging, storage or treatment, the classification is currently identified as a UBC, F-2 for the process facility." This is a change from the H-4 classification stated in the Conceptual Design Report.

3.4 Waste Treatment Function

This section identifies the requirements and design criteria imposed for the Waste Treatment Function of the SSSTF. Included in this Waste Treatment Function are stabilization, treatment, or other preparation of INEEL CERCLA waste which does not meet the ICDF WAC or LDRs for final disposal.

1. The SSSTF process building shall be sized to contain treatment, truck unloading and loading, and special case handling activities.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 014; T&FR Section 3.1.2.3, Requirement Number 015; T&FR Section 3.1.2.3, Requirement Number 041; T&FR Section 3.1.2.3, Requirement Number 043; T&FR Section 3.1.2.3, Requirement Number 044

2. The SSSTF shall stabilize waste at a maximum peak rate of 73 yd³ per day.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 015

Notes: EDF-1547

3. The SSSTF treatment process shall stabilize non-aqueous waste to meet LDR and ICDF WAC levels.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 015; T&FR 3.1.2.3, Requirement Number 041; 40 CFR 268 Subpart D

4. The SSSTF shall utilize a mixing basin and backhoe method to perform stabilization and size reduction.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015; T&FR Section 3.1.2.3, Requirement Number 041; 40 CFR 268 Subpart D

Notes: Although the T&FR does not state as a requirement that a shredder/pug-mill system will be used for the SSSTF, the OU 3-13 Record of Decision states that it is anticipated that the SSSTF will consist of a waste shredder [OU 3-13 ROD, pg. 11-15]. Evaluations performed indicate that a backhoe and trench method adequately meets the intent of the requirement for sizing of waste and mixing for stabilization. EDF-1542 documents this engineering analysis.

5. The SSSTF mixing basin shall have a treatment capacity of 30 yd³ (including waste and reagents).

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015

Notes: This volume covers the volume of two roll-on/roll-off boxes (total 26 yd³) and allows for extra room for reagents and mixing.

6. The SSSTF treatment process equipment shall be able to be decontaminated.

Requirement Source: T&FR Section 3.1.2.4, Requirement #045; PRD-183, INEEL Radiological Controls Manual

Notes: Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.

7. The SSSTF treatment process shall prevent releases of waste contained in the mixing basin to ensure protection of human health and the environment consistent with 40 CFR 264.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015; 40 CFR 264.601

8. The SSSTF trench shall withstand design loads from the waste and waste stabilization operations.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015; 40 CFR 264.601(b); DOE-ID Architectural Engineering Standards

9. The SSSTF backhoe working envelope shall extend to all areas within the trench, as well as to the farthest side of the roll-on/roll-off box being loaded with stabilized waste.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015

10. The SSSTF backhoe shall withstand design loads when stabilizing and loading waste.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015; DOE-ID Architectural Engineering Standards

11. The SSSTF backhoe shall have an end effector for sizing waste.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013

12. The SSSTF backhoe shall have an end effector for mixing waste.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 015

13. The SSSTF backhoe shall have an end effector for loading waste.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013, T&FR Section 3.1.2.3, Requirement Number 015

14. The SSSTF backhoe and end effectors shall be able to be decontaminated.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling, temporary storage, and decontamination of materials, tools, and equipment.

15. The SSSTF shall treat all underlying hazardous constituents from wastes originating outside of the AOC and wastes which trigger placement to meet Universal Treatment Standards, found in 40 CFR 268.48.

Requirement Source: 40 CFR 268.40(e); 40 CFR 268.48

16. Hazardous waste originating outside of the WAG 3 AOC or wastes triggering placement that contain metals in excess of toxic characteristic limits shall be treated to achieve 90% reduction in TCLP leachate concentrations for contaminants of concern, or Universal Treatment Standards, as applicable.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015; 40 CFR 268.49

Notes: When treatment to a 90% reduction standard would result in a leachate concentration less than 10 times the Universal Treatment Standard for that constituent, treatment to achieve constituent concentrations less than 10 times the Universal Treatment Standard is not required. At this time, metals are the only constituents requiring treatment for the waste included in EDF-1540.

17. The SSSTF shall NOT have an organic treatment system.

Notes: Based on EDF-1540, no waste contaminated with organic compounds exceeding LDR levels are anticipated.

18. The SSSTF shall stabilize approximately 36,000 yd³ of non-aqueous CERCLA waste from outside the WAG 3 AOC or waste from within the WAG 3 AOC that has triggered placement.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 015

Notes: EDF-1541

19. The SSSTF operations shall perform statistical-based sampling of bulk stabilized waste material.

Requirement Source: T&FR Section 3.1.1, Requirement Number 002

Notes: Per EDF-1544, for small waste streams, sampling of even one batch may effectively be 100% of the treated waste. For large waste streams, the frequency of sampling of treated batches will be determined statistically based on waste variability. Because the objective of waste stream sampling is to determine if the average concentration of the waste stream meets the requirements, composite sampling of treated batches will be used. Further development of the treated waste verification procedures will be included in the Waste Analysis Plan.

20. The SSSTF stabilized waste shall meet the agency approved ICDF Landfill WAC.

Requirement Source: T&FR Section 3.1.1, Requirement Number 002; T&FR Section 3.1.2.3, Requirement Number 015

Notes: EDF-1542

21. The SSSTF stabilized waste shall contain no free liquid as determined by visual examination and the paint filter test (as defined in Paint Filter Liquids Test SW-846 Method 9095).

Requirement Source: T&FR Section 3.1.1, Requirement Number 002; T&FR Section 3.1.2.3, Requirement Number 015; 40 CFR 264.314

Notes: EDF-1542

22. The SSSTF stabilized waste shall pass leach testing per the TCLP.

Requirement Source: T&FR Section 3.1.1, Requirement Number 022; T&FR Section 3.1.2.3, Requirement Number 015; 40 CFR 268.7

Notes: EDF-1542

23. The SSSTF shall provide a means for placing stabilized waste in roll-on/roll-off containers for transfer to the landfill.

Requirement Source: T&FR Section 3.1.2.3, Requirement Number 013; T&FR Section 3.1.2.3, Requirement Number 015

Notes: EDF-1542

24. The SSSTF shall control the generation of dust to levels at or below 1 mg/m³ (total dust).

Requirement Source: IDAPA 58.01.01.650; IDAPA 58.01.01.651; DOE Order 440.1A; ACGIH Standards

Notes: Requirement for control of fugitive dust emissions. Appropriate precautions per IDAPA 58.01.01.650 include the use of water or chemicals, application of dust suppressants, or use of control equipment.

25. The SSSTF shall control the generation of total silica dust to levels at or below $100 \mu\text{g}/\text{m}^3$.

Requirement Source: IDAPA 58.01.01.650; IDAPA 58.01.01.651; DOE Order 440.1A; ACGIH Standards

Notes: Requirement for control of fugitive dust emission. Appropriate precautions per IDAPA 58.01.01.650 include the use of water or chemicals, application of dust suppressants, or use of control equipment.

26. The SSSTF shall control the generation of specific silica (SiO_2) to levels at or below $50 \mu\text{g}/\text{m}^3$.

Requirement Source: IDAPA 58.01.01.650; IDAPA 58.01.01.651; DOE Order 440.1A; ACGIH Standards

Notes: Requirement for control of fugitive dust emission. Appropriate precautions per IDAPA 58.01.01.650 include the use of water or chemicals, application of dust suppressants, or use of control equipment.

27. Radiological monitoring of radiation levels, contamination, and airborne radioactivity shall be conducted to characterize workplace conditions; verify effectiveness of physical design, engineering, and process controls; demonstrate regulatory compliance; detect buildup of radioactive material; identify and control personnel exposure; and determine exposure rates.

Requirement Source: 10 CFR 834.403; IDAPA 58.01.01.650; IDAPA 58.01.01.651; PRD-183, INEEL Radiological Controls Manual

Notes: To prevent internal exposure of radioactive materials to personnel. Monitoring of airborne radioactivity shall be performed where an individual is likely to receive an exposure of 40 or more derived air concentration hours in a year. Monitoring will occur as necessary to characterize the airborne radioactivity hazard where respiratory protective devices have been prescribed.

28. The SSSTF process building shall have TBD number of personnel contamination monitors (PCMs).

Requirement Source: PRD-183, INEEL Radiological Controls Manual

Notes: PCMs will be located and installed per the INEEL Radiological Controls Manual

29. The SSSTF process building shall have TBD number of alpha and beta continuous air monitors (CAMs) to monitor airborne radionuclides.

Requirement Source: PRD-183, INEEL Radiological Controls Manual, Section 555, pg. 5-18

30. SSSTF stabilization operations shall be performed in a ventilated environmental enclosure with filtered ventilation air.

Requirement Source: 10 CFR 835.1002; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1542. Per the INEEL Radiological Controls Manual, an environmental enclosure and ventilation shall be used to control inhalation of airborne radiological constituents. Per an e-mail from Arlo Summers, SSSTF Radiological Engineer, the current bounding (30% design) internal radiation exposure analysis demonstrates that HEPA filters are not needed as primary barrier for worker radiation safety. The current primary barrier is a water spray (dust suppression) system. EDF-3 explains this and states that any ventilation/filter system is a secondary (defense-in-depth) barrier. As for radiation exposure to the public (10 mrem/yr limit), it has been decided not to do the NESHAP analysis for the 30% design, but do it as part of the 90% design. If the NESHAP analysis results in a need for a "dual-stage HEPA filters," then it will be required "to ensure that no radioactive constituents above regulatory limits are released to the atmosphere."

31. Air emissions from the stabilization process shall meet NESHAPS and Idaho dust emission standards.

Requirement Source: 40 CFR 61.92 - .93; 40 CFR 61.151; DOE 5400.5: II; IDAPA 58.01.01.650; IDAPA 58.01.01.651

3.5 Decontamination Function

This section identifies the requirements and design criteria imposed for the Decontamination Function of the SSSTF. Included in this Decontamination Function are facilities for vehicle and equipment washdown and collection units for contaminated wash water.

1. The SSSTF shall include a decontamination facility to remove radiological and hazardous contamination from waste transport vehicles, waste containers, and equipment.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.

2. The SSSTF decontamination facility shall provide facilities for decontamination of waste transport trucks.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment. Waste transport trucks include flatbed trucks, with roll-on/roll-off containers, wood or metal boxes, bags, drums, and super-sacks, or end dump trucks.

3. The SSSTF decontamination facility shall provide facilities for decontamination of waste transport containers.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.

5. The SSSTF shall provide means to decontaminate vehicles traveling from the SSSTF to the ICDF Landfill when required.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.

6. The SSSTF shall provide means to decontaminate vehicles leaving the ICDF Landfill to acceptable radiological and hazardous contamination levels.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.

7. Any SSSTF system or component that meets the definition of a sump or tank per 40 CFR 260.10 shall be designed in accordance with 40 CFR 264 Subpart J.

Requirement Source: T&FR section 3.1.2.3, Requirement Number 014; T&FR section 3.1.2.4, Requirement #047; 40 CFR 260.10; 40 CFR 264 Subpart J

Notes: Per 40 CFR 260.10, Sump means any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities. Except that as used in the landfill, surface impoundment, and waste pile rules, "sump" means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system. Tank means a stationary device, designed to contain an accumulation of hazardous waste that is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support. Tank system means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

8. The SSSTF shall filter used decontamination water to remove solids.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.

9. The SSSTF shall remove oily contaminants from decontamination water.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Removal of oily contaminants from the decontamination water is included as a Best Management Practice.

10. The SSSTF shall transfer processed decontamination water to the ICDF evaporation pond.

Requirement Source: T&FR Section 3.1.2.4, Requirement Number 045; PRD-183, INEEL Radiological Controls Manual

Notes: EDF-1545. Per the INEEL Radiological Controls Manual, decontamination activities should be controlled to prevent the spread of contamination. In addition, work preplanning should include consideration of the handling; temporary storage; and decontamination of materials, tools, and equipment.